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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,227	11/14/2003	Akira Asai	MAZN0104PUSA	2541

22045 7590 07/02/2004

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EXAMINER	
ESHETE, ZELALEM	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/714,227	ASAI ET AL.	
	Examiner	Art Unit	
	Zelalem Eshete	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 11/14/03;03/22/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (6,405,694) in view of Ishii et al. (6,478,000).

Sato discloses an engine variable valve timing system comprising: a hydraulic variable intake phase mechanism and a hydraulic variable exhaust phase mechanism respectively provided on the ends of an intake camshaft and an exhaust camshaft that respectively vary the respective phases of the camshafts, the variable phase mechanisms respectively having advancing hydraulic pressure chambers and retarding hydraulic pressure chambers (see figures 1-4); an intake hydraulic pressure control valve and an exhaust hydraulic pressure control valve that respectively control the hydraulic pressure supplied to the advancing hydraulic pressure chambers and the retarding hydraulic pressure chambers of the variable phase mechanisms (see numerals 24,25); intake-side advancing hydraulic line and an intake-side retarding hydraulic line that respectively connect the intake hydraulic pressure control valve to the advancing hydraulic pressure chamber and the retarding hydraulic pressure chamber of

the variable intake phase mechanism (see figures 1,2); and an exhaust-side advancing hydraulic line and an exhaust-side retarding hydraulic line that respectively connect the exhaust hydraulic pressure control valve to the advancing hydraulic pressure chamber and the retarding hydraulic pressure chamber of the variable exhaust phase mechanism (see figures 1,2); wherein portions of the intake-side advancing hydraulic line and the intake-side retarding hydraulic line respectively constitute annular grooves for advancing and retarding provided on the intake camshaft bearing surface of the cam cap which supports the camshaft, and portions of the exhaust-side advancing hydraulic line and the exhaust-side retarding hydraulic line respectively constitute annular grooves for advancing and retarding provided on the exhaust camshaft bearing surface of the cam cap which supports the camshaft (see numerals 46,47).

Sato fails to disclose the annular groove for retarding on the intake camshaft bearing surface and the annular groove for advancing on the exhaust camshaft bearing surface are respectively provided in the center in the width direction of their respective bearing surfaces; the annular groove for advancing on the intake camshaft bearing surface and the annular groove for retarding on the exhaust camshaft bearing surface of the cam cap are respectively provided near the edges of their respective bearing surfaces in the width direction, on the side close to respective variable phase mechanisms.

However, Ishii teaches the annular groove for advancing on the exhaust/intake camshaft bearing surface are respectively provided in the center in the width direction of their respective bearing surfaces; and the annular groove for retarding

on the exhaust/intake camshaft bearing surface of the cam cap are respectively provided near the edges of their respective bearing surfaces in the width direction (see figure 2, column 20, line 54 to column 21, line 10).

In addition, the above combination fails to show reversing the retard and advance grooves on the intake camshaft (intake side). It would have been obvious to one having ordinary skill in the art at the time the invention was made to reverse the groove positions depending on the engine, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Ishii as applied to claim 1 above, and further in view of Takahashi et al. (6,516,759).

Sato in view of Ishii discloses the claimed invention as recited above; however, fails to disclose the variable exhaust phase mechanism is provided with a spring that presses the camshaft in the advancing direction with respect to a crankshaft-side rotating member.

However, Takahashi teaches the variable exhaust phase mechanism is provided with a spring that presses the camshaft in the advancing direction with respect to a crankshaft-side rotating member in order to offset a reactive force of the camshaft (see column 10, lines 43 to 51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Sato in view of Ishii by providing a spring arrangement as taught by Takahashi in order to offset a reactive force of the camshaft as taught by Takahashi.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Ishii as applied to claim 1 above, and further in view of Suzuki (6,289,861).

Sato in view of Ishii discloses the claimed invention as recited above; and Sato further discloses the exhaust hydraulic side advancing hydraulic line that extends from the exhaust hydraulic pressure control valve to the annular groove is provided in a position (above, had it been vertical) that extends from the exhaust hydraulic pressure control valve to the annular groove (see figure 2).

Sato in view of Ishii fails to disclose the exhaust hydraulic pressure control valve is attached to the cam cap toward the vertical direction.

Suzuki teaches the hydraulic pressure control valve attached in the vertical direction (see figure 4). Suzuki also teaches that such arrangement results in a very compact assembly (see abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Sato in view of Ishii by providing a vertically attached hydraulic pressure control valve as taught by Suzuki in order to achieve a more compact assembly as taught by Suzuki.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (703) 306-4239. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zelalem Eshete
Examiner
Art Unit 3748

Z

Thomas Denion
THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700